

操作指南 • 11/2014

SCALANCE XM400 交换机的本 地路由

XM400

http://support.automation.siemens.com/CN/view/zh/105784318

说明

在给 SCALANCE XM400 交换机设置路由时,需要建立 VLAN,然后建立子网。只要把 建立的子网相应的分配给不同的 VLAN,这时 SCALANCE XM400 就作为一个本地路由 器。本地路由器的配置方法简单可靠。该方案使用于小型的,具有较少网段的,仅 需要一台 SCALANCE XM400 作为路由器的工业网络。

组态步骤

 网络连接状态如图 1,网络 1 设备连接到 SCALANCE XM400 交换机的 P1.1 口, 子网 10.0.0.0/8;网络 2 设备连接到 P1.2 口,子网 192.168.1.0/24;交换机 IP 设置为 192.168.0.18/24。



图 1

2. 如图 2,首先要为交换机划分 VLAN,交换机默认所有端口属于 VLAN1,新增加 VLAN2 和 VLAN3,分配 P1.1 仅属于 VLAN2,分配 P1.2 仅属于 VLAN3。VLAN 设置

要注意: 连接终端设备设置" U" , 交换机之间连接设置" M" 。

SIEMENS	192.1	68.	0.18/S	CALA		M408	3-8C					
Welcome admin	Virtual I	_ocal /	Area Netv	vork (VL	AN) General							
Logout	General G	/RP Po	rt Based VL	AN Protoco	ol Based VLAN G	iroup Pr	otocol B	ased VLA	N Port	lpv4 Sub	net Base	d VLAN
►Information				1		eeswa ee			1000000			
▶ System	VLAN ID	2		×								
		Select	VLAN ID	Name	Status	P1.1	P1.2	P1.3	P1.4	P1.5	P1.6	P1.7
Layer 2			1		Static	170	853	U	U	U	U	U
► Configuration			2		Static	U	1000	7 8	8		((*))	×
▶QoS			3		Static	1.00	U	2	12	100	1840	28
►Rate Control		3 entrie	S.									
► VLAN												
► Mirroring	Create	Delete	Set Values	Refresh								
Dynamic MAC												

图 2

3. "Port Based VLAN" 设置端口的 PVID, 如图 3。尽量避免出现红色的"U"。

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G	eneral GVF	RP Port Based	d VL	AN Protoco	I Ba	sed VLAN Group P	roto	col Based VLAN	Por	t Ipv4 Subnet E
lation		Delevite		De d MD		Annual black		Income Pittering		Ocean de Table
m	All parts	Priority		Port VID		Acceptable Frames		Ingress Filtering		Copy to Table
2	All ports	NU Change	~	No Change	~	No Ghange	~	No Change	×	Copy to Table
nfiguration					_					
o	Port	Priority		Port VID		Acceptable Frames		Ingress Filtering		
Þ	P1.1	0	~	VLAN2	~	All	~			
te Control	P1.2	0	~	VLAN3	×	All	4			
AN	P1.3	0	~	VLAN1	45	All	~			
roring	P1.4	0	×	VLAN1	~	All	Y			
namic MAC	P1.5	0	×	VLAN1	Y	All	Y			
ng	P1.6	0	¥	VLAN1	×	All	Y			
a	P1.7	0	Y	VLAN1	~	All	Y			
dundancy	P1.8	0	~	VLAN1	×	All	Y			
anning Tree	P2.1	0	~	VLAN1	~	All	Y			
n Detection	P2.2	0	¥	VLAN1	×	All	Y			
, Detection	P2.3	0	~	VLAN1	~	All	~			
regation	P2.4	0	~	VLAN1	~	All	~			
	P2.5	0	V	VLAN1	V	All	V			
arding	P2.6	0	~	VLAN1	~	All	V			
P	P2.7	0	V	VLAN1	~	All	~	Ē		
ast	P2.8	0	~	VLAN1	~	All	~			
icaet	P3.1	0	~	VLAN1	~	All	~			
luast	P3.2	0	~	VLAN1	~	All	Y			
adcast	P3.3	0	V	VLAN1	~	All	~			
ON	P3.4	0	~	VLAN1	~	All	V			
	P3.5	0	V	VLAN1	V	All	V			
5	P3.6	0	~	VLAN1	×	All	Y			
y	P3.7	0	V	VLAN1	~	All	V			
	P3.8	0	V	VLAN1	V	All	V			

图 3

4. 如 图 4, 在目录" Layer 3" -" Subnets" -" Overview" 选择 VLAN2 和 VLAN3, 并创建子网。之后在"Configuration" -"Interface" 分别选择 VLAN2/VLAN3, 添加子网地址信息, 如图 5, VLAN2: 10.0.0.1/8, VLAN3:

192.168.1.1/24.

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	192.168.0	0.18/SC	ALANCE	XM408-8	0					
Welcome admin	Connected Su	ubnets Over	view							
Logout										
Information	Overview Configure	ation								
System	Interface: VLAN2	Y								
Layer 2	Select	Interface	TIA Interface	Interface Name	MAC Address	IP Address	Subnet Mask	Address Type	IP Assgn. Method	Address Collision
+Layer 3		Out-Band		eth0	00-1b-1b-9d-3a-3d	0.0.0.0	0.0.0	Primary	Static	Not supported
 Configuration 		vlan1	yes	vlan1	00-1b-1b-9d-3a-00	192.168.0.18	255.255.255.0	Primary	Static	Not supported
► Subnets		vlan2		vlan2	00-1b-1b-9d-3a-00	10.0.0.1	255.0.0.0	Primary	Static	Idle
▶Routes		vlan3		vlan3	00-1b-1b-9d-3a-00	192.168.1.1	255.255.255.0	Primary	Static	Active
Route Maps		loopback0		loopback0	00-00-00-00-00	127.0.0.1	255.0.0.0	Primary	Static	Not supported
 DHCP Relay Agent VRRP 	5 entrie	95.								
▶OSPFv2										
▶RIPv2	Create	Refresh								
Security										

图 4

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Welcome admin	Connected Subnets Configur	ation
Logout		
► Information	Overview Configuration	
▶ System	Interface (Name): vlan2 (vlan2)	~
▶Layer 2	Interface Name: vlan2 MAC Address: 00-1b-1b-9d-3a-00	
★Layer 3	DHCP	
Configuration	IP Address: 10.0.0.1	
Subnets	Subnet Mask: 255.0.0.0	
▶ Routes	Address Type: Primary	
▶ Route Maps		
DHCP Relay	Set Values Refresh	
▶ VRRP		
▶OSPFv2		
▶RIPv2		
▶Security		

图 5

5. 如图6,在目录"Layer 3"-"Configuration",激活"Routing"功能。

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Welcome admin	Layer 3 Configuration
Logout	
► Information	✓ Routing
▶ System	DHCP Relay Agent
►Layer 2	
★Layer 3	RIP
► Configuration	Set Values Refresh
▶Subnets	
▶ Routes	
▶ Route Maps	
DHCP Relay Agent	
▶ VRRP	
▶OSPFv2	
▶RIPv2	
▶Security	

图 6

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6. 这样 SCALANCE XM400 交换机的本地路由设置完成,在网络1的网关地址是:
10.0.0.1,网络2的网关地址是192.168.1.1。如图7, "Information" "Routing"可以查看交换机的路由表。注意,本地路由必须要相应的端口连接

设备之后,路由表里才可以看到,路由功能才 可以生效。

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Welcome admin	Layer 3: R	outing	Table					
Logout								
-Information	Routing Table	OSPFv2	Interfaces	OSPF	2 Neighbors	OSPFv2 Virtual Neighbo	rs OSPFv2 LSDB	RIPv2 Statistics
Start Page	Destination	Network	Subnet Mas	k	Gateway	Interface	Metric	Routing Protocol
► Versions	10.0.0.0		255.0.0.0		0.0.0.0	vlan2	0	connected
▶1&M	192.168.0.0		255.255.255	.0	0.0.0.0	vlan1	0	connected
ARP Table	192.168.1.0		255.255.255	.0	0.0.0	vlan3	0	connected
►Log Table								
Faults	Refresh							
▶ Redundancy								
 Ethernet Statistics 								
►Unicast								
▶Multicast								
▶ LLDP								
► Routing								

图 7

7. 如果网络2和网络3的设备分别是 PLC 和 PC, IP 设置如图8, 图9。设置完成 后即可进行正常通讯。

IP address: Subnet mask: □ Use different i	10.0.0.2 255.255.255.0 method to obtain IP address	Gateway C Do not us Use route Address:	e router r 10.0.0.1		
Subnet: not networke	ed			New	
Ethernet(2) Ethernet(3)				Propert	ies
Ethernet(10)				Dele	te

图 8

General		
You can get IP settings assigned this capability. Otherwise, you ne the appropriate IP settings.	l automatically if your network supp ed to ask your network administrate	orts or for
🔘 Obtain an IP address auton	natically	
─⊙ Use the following IP addres	S	
IP address:	192.168.1.2	
Subnet mask:	255 . 255 . 255 . 0	h
Default gateway:	192.168.1.1	
Obtain DNS server address	automatically	
✓ ● Use the following DNS served as a served of the se	ver addresses:	
Preferred DNS server:	2 23 22	
Alternate DNS server:		
	Advanc	ed

